The Future of Infection Prevention

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Predicting the Future
Objectives

• Describe surveillance changes in the future
• Recognize the role of technology in the future
• Identify key characteristics of future IPC programs
• Describe the skill sets necessary for IPs in coming years
Definition of Future

Future: A time to come. Will exist any time after the present.

Let’s look at the future from different perspectives.
We’ll start with 5 years, and then speculate after that.
Notable Quotes

Reflecting on the future of Infection Prevention and Control: are we waiting or creating?

Barbara Soule
Let’s look at the next 5 years first

Surveillance:

• New NHSN definitions in 2015 mean that 2015 will be the new baseline for the SIR
• CDC predicts moving to algorithmic surveillance within the next 5 years
• Surveillance will seem like the old total house surveillance with a twist
• More measures will qualify for pay for performance and penalties
Much More to Come with HAC Data
Hospitals who score in the worst 25% receive a 1% Medicare Penalty Reduction
Other less distinct measures for HAIs- bundled payments

Jan 26, 2015

• HHS announced its goal of tying 30 percent of fee-for-service Medicare payments to quality output through alternative payment models, like ACOs or bundled payment arrangements, by the end of 2016

• HHS set a goal of tying 85 percent of all traditional Medicare payments to quality or value by 2016

• 90 percent by 2018 through programs such as the Hospital Value Based Purchasing and the Hospital Readmissions Reduction Programs
Waiting or Creating?

What about readmissions related to HAIs
Patient Engagement
Primary Medical Homes
Testing of new payment models
Greater integration

Other Trends

System level healthcare, medical groups, physician practices


Looked at local hospitals, systems, multihospital systems in California:

From the perspective of the insurers and patients, between 2009 and 2012, hospital-owned physician organizations in California incurred higher expenditures for commercial HMO enrollees for professional, hospital, laboratory, pharmaceutical, and ancillary services than did physician-owned organizations. Although organizational consolidation may increase some forms of care coordination, it may be associated with higher total expenditures per patient.

May be a move toward strategic partnerships
Media will have expanded and rapid involvement

After Deadly Infections, F.D.A. Asks Device Makers About Cleaning Methods

ERCP Infection Lawsuits Filed Against Duodenoscopes Makers Over CRE Outbreak -

An X-ray of a procedure to identify gall stones with a duodenoscope. Science Source

Patients enter superbug lottery

Hospitals tout fatal bug rules

New killer superbug infects 41 patients

Hospitals on alert as victim dies
What about technology?

FEDERAL HEALTH IT STRATEGIC PLAN
2015 – 2020
The Future

- HAI surveillance requirements in the EHR Incentive Program consistent with HAI reporting requirements by other federal agencies
- HAI surveillance included in the Centers for Medicare and Medicaid Services
- (CMS) EHR Incentive program in order to provide financial incentives to facilities that have had to implement NHSN reporting for CMS
- Standardized EHR across the continuum of care
- HIPPA compliant program for seamless transfer of data
Where will Infection Prevention go in coming years?

• A rapidly changing discipline - Infection Prevention recognized as a distinct specialty

Laboratory:
• Molecular Epidemiology
  - Refine our measurement techniques
  - Biomarkers of the future
• Genetic Epidemiology
• Statistical Models
• Implementation Science
Continuing Emerging Threats

• Bioterrorism
• Natural Disasters
• Re-emergence of old diseases or those not prevalent in the U.S. (Measles, Ebola, Pandemic Influenza)
• Antibiotic Resistance
What needs to be done?

- Mobilized specialized teams
- Attention to global issues
- Need for appropriately trained, staffed and resourced infection prevention and control departments
How about culture?

Emotion changes behaviour more than knowledge. We in Science need those in the "Arts". #antimicrobials2015 Cosgrove
Implementation Science

• Change in healthcare is needed
• We must blend technical information with those social and adaptive skills necessary to bring evidence to the bedside
• We will see expansion of these models:
  CUSP
  4 Es
  Teamwork and leadership training
Leverage the power and the wisdom of the front line staff
What does the evidence tell us about changes in the way care is delivered?

Researchers propose social network modeling to fight hospital infections

This is an illustration of dense (left) and sparse (right) patient ICU social networks. Patients in the circle that share a nurse are connected by lines (links), while patients that share a physician have the same shade/color (gray or black). Credit: University of Maryland

The basic reality is that healthcare workers frequently cover for one another due to meetings, breaks and sick leave," said Barnes. "These factors, along with the operating health care-worker-to-patient ratios and patient lengths of stay, can significantly affect transmission in an ICU... But they also can be better controlled

https://jflahiff.wordpress.com/tag/hospital-infections/
What we will see

• Integrated healthcare networks
• Infection Prevention and Control Programs within the larger context of patient safety
• Increased collaboration
• Less hierarchy
• More heterogeneity in programs and personnel
How do we create what we want the future to be?

Different Direction

- Contextual Journey
  - INSIDE OUT
    - Observe then define
    - Observation for understanding
  - Anthropology foundation
  - Solutions are uncovered, guided by insiders, those directly involved-creates ownership

- Traditional Journey
  - OUTSIDE IN
    - Define, then observe
    - Observation for compliance
  - Manufacturing foundation
  - Solutions are pre-defined, guided by outsiders, those indirectly involved-buy-in

Our New Journey
Zero HAIs
How do we get there?
13. "If excessive smoking actually plays a role in the production of lung cancer, it seems to be a minor one." – W.C. Heuper, National Cancer Institute, 1954

Healthy Lung  Tar Filled Lung

21. "Rail travel at high speed is not possible because passengers, unable to breathe, would die of asphyxia." – Dr. Dionysius Lardner, 1830

23. "This 'telephone' has too many shortcomings to be seriously considered as a means of communication. The device is inherently of no value to us." – Western Union internal memo, 1876
14  “There is no reason for any individual to have a computer in his home.” – Ken Olson, president, chairman and founder of Digital Equipment Corporation (DEC), in a talk given to a 1977 World Future Society meeting in Boston

19  “X-rays will prove to be a hoax.” – Lord Kelvin, President of the Royal Society, 1883

20  “I think there is a world market for maybe five computers.” – Thomas Watson, chairman of IBM, 1943
...AND YOU THINK YOU HAVE STRESS..
Don’t try to innovate for the future, innovate for the present.

Peter Drucker
Culture of Safety

What is culture? (climate)

“The way we do things around here.”

1 person’s attitude = opinion
Everyone’s attitude = culture
High Reliability Organization (HRO)

- Definition of HRO: Healthcare organization that functions in a hazardous environment, yet is essentially error-free for long periods of time (Roberts 1990)

- Characteristics:
  - Organizational commitment to safety
  - High level of backup steps to safety measures
  - Strong culture for continuous learning (Weick ‘02)

Key concept: **Interdependent teams** vs. autonomous individuals
Physicians and RN Collaboration

- L&D RN/OB: 83% RN rates Physician, 48% Physician rates RN
- OR RN/Surgeon: 88% RN rates Physician, 48% Physician rates RN
- ICU RN/MD: 90% RN rates Physician, 54% Physician rates RN
- CRNA/Anesthesiologist: 93% RN rates Physician, 59% Physician rates RN
Teamwork Disconnect

M.D.- “Good teamwork means the nurse does what I say”

R.N.- “Good teamwork means I’m asked for my input”
Team STEPPS

Strategies and tools to enhance performance and patient safety
Team STEPPS Tools for Leaders

- **Briefs** – planning
- **Huddles** - problem solving
- **Debriefs** – process improvement
Communication

• Complete
• Clear
• Brief
• Timely
Rank Order of Error Reduction Strategies

1. Forcing functions and constraints
2. Automation and computerization
3. Standardization and protocols
4. Checklists and double check systems
5. Rules and policies
6. Education / Information
The Objective

Improve teamwork and communication....ultimately, creating a culture of safety
Literature on Improvement

Managing Behavior - Just Culture

Human Error
Product of our current system design
Manage through changes in:
- Processes
- Procedures
- Training
- Design
- Environment

At-Risk Behavior
Unintentional Risk-Taking
Manage through:
- Removing incentives for At-Risk Behaviors
- Creating incentives for healthy behaviors
- Increasing situational awareness

Reckless Behavior
Intentional Risk-Taking
Manage through:
- Remedial action
- Disciplinary action

Console
Coach
Punish
Tipping point

The tipping point is that magic moment when an idea, trend, or social behavior crosses a threshold, tips then spreads like wildfire.

3 types of people:

**Connectors**: know tons of people and gladly connect with them

**Mavens**: seek out knowledge and share it with others

**Salesmen**: instinctively garner support
Highlights management practices of high performing healthcare organizations:

- Top level commitment
- Physician-nurse alignment
- Systematic education
- Meaningful use of data
- Rewards and recognition
Elevation of the Profession

Clear Vision and Mission

**Vision:** Healthcare without infection

**Mission:** Create a safer world through prevention of infection

Strategic Plan 2020 (pt. safety, implementation science, pt. advocacy, data standardization)
IP Competencies
(Leadership, IPC, Technology, Implementation Science)

Goals:
• Connect with science and evidence based practice
• Support ongoing role development
• Emphasize the importance of certification
• Remain relevant across IP’s career span
• Apply across all practice settings
Certification is Key

**Evidence** supports certification:

- Pogorzelska, Stone, Larson. “Certification in Infection Control Matters” AJIC; 2012 March
- Krein. “Preventing ventilator associated pneumonia in the US”; ICHE 2008

**GOAL:** 50% of eligible APIC members
Future of Certification

• Link with institutional job descriptions

• Use designation to strengthen role development and professional practice

• Levels of practice: novice/advanced/expert
Future Changes

Future societal changes may include:

• Antiaging drugs
• Increased prevalence of chronic diseases
• Universal medical records carried by every patient
• Innovative methods for drug administration
• Increased xenotransplantation
• Geographic info systems to track pt. and HCW movement
Old skills won’t lead to new outcomes

“What Got You Here Won’t Get You There” by Marshall Goldsmith

Leadership and Followership skills must be honed

Leadership: ability to influence others—essential competency

Transactional vs. Transformational Leadership

Transactional—specifies roles and tasks; “one size fits all”
Transformational—inspires followers to see beyond their self interest

Saint/Krein

“The only thing constant is change” Heraclitus
New Frontier of Leadership

“Know Thyself”

• Influence
• Self knowledge
• Strategic relationships
• Reciprocity

Manning;ICHE;2010
Followership

Kelly identified 5 key types of followers:

1. **Alienated** (mavericks, cynical)
2. **Conformists** ("yes people")
3. **Passivists** (lack initiative)
4. **Exemplary** (innovative/independent, willing to question leaders)
Human Barriers to Improvement

3 types of staff who present barriers:
1. Active resisters (if it ain’t broke don’t fix it)
2. Organizational constipators (usually mid to high level execs, disinterested resistors)
3. Timeservers (serving out their time doing the least possible)

One ingredient for success is anticipating common barriers!
Skills needed

“The future is not something we enter. The future is something we create.” (Sweet)

Emerging Knowledge Fields

• Organizational dynamics
• Data mining
• Bioengineering
• Social marketing
• Health care economics
• Green technology
• Biomedical ethics
Types of Leaders

Leadership Behaviors

• Designated
• Situational

Leadership Behaviors

• **Expert** - based on specialized knowledge of task at hand
• **Facilitative** – any member who can manage the process of the team’s work
<table>
<thead>
<tr>
<th>Modus Operandi</th>
<th>Commanding (1)</th>
<th>Pacesetting (2)</th>
<th>Visionary (3)</th>
<th>Affiliative (4)</th>
<th>Democratic (5)</th>
<th>Coaching (6)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Demands Immediate Compliance</td>
<td>Sets High Standard for Performance</td>
<td>Mobilized People Towards a Vision</td>
<td>Creates Harmony and Builds Bonds</td>
<td>Forges Alignment Through Participation</td>
<td>Develops People for the Future</td>
</tr>
<tr>
<td>In a phrase</td>
<td>Do what I tell you</td>
<td>Do as I do, now</td>
<td>Come with me</td>
<td>People come first</td>
<td>What do you think?</td>
<td>Try this</td>
</tr>
<tr>
<td>EI Competencies</td>
<td>Drive to achieve, initiative, self-control</td>
<td>Drive to achieve, initiative, conscientiousness</td>
<td>Self confidence, empathy, change catalyst</td>
<td>Empathy, building relationships, communication</td>
<td>Collaboration, team leadership, communication</td>
<td>Developing others, empathy, self-awareness</td>
</tr>
<tr>
<td>Color Energy</td>
<td>RED</td>
<td>RED/BLUE</td>
<td>RED/YELLOW</td>
<td>GREEN</td>
<td>YELLOW</td>
<td>GREEN/YELLOW</td>
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| Works Best               | • Crisis  
|                          | • Kick start  
|                          | • Problem employees | • Quick results from motivated and competent team | • Change required  
|                          |                 |                  | • Clear direction needed | • Heal rifts in a team  
|                          |                 |                  |                  | • Stressful situations | • Build buy-in  
|                          |                 |                  |                  |                  | • Help improve performance  
|                          |                 |                  |                  |                  | • Long-term development |

Adapted from: Primal Leadership: Goleman, Boyatzis & McKee
Effective Leaders

• Set clear expectations

• Define who’s accountable

• Effectively use all available resources
Horizontal vs. Vertical Prevention

Prevention Strategies that target specific organisms

Prevention techniques used to address all organisms
Vertical Prevention: Eliminating Special Status For MRSA and VRE

• A brave new world
Horizontal Exhibit A: CHG bathing

Studies showing efficacy (Huang, Climo, Beasdale, Popovich, Vernon)

AHRQ Protocol (Sept. 2013)

SHEA CLABSI Compendium (2014)

Meta-analysis (J. Thoracic Disease Aug. 2013)

Study refuting efficacy (Noto JAMA 2015)
FLEXIBILITY
It is almost never, ever over-rated.
The Pace of Change

Past

Present

Future
And it’s bright!
Thank you!
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